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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,735	07/25/2003	Leonard Forbes	M4065.0181/P181-B	9702

24998 7590 08/12/2004

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EXAMINER	
TRA, ANH QUAN	

ART UNIT	PAPER NUMBER
2816	

DATE MAILED: 08/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/626,735	FORBES, LEONARD	
	Examiner	Art Unit	
	Quan Tra	2816	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 June 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *67-98* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *67-98* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This office action is in response to the amendment filed 06/30/04. A new ground of rejection is introduced as necessitated by amendment.

Terminal Disclaimer

1. The terminal disclaimer filed on 06/30/04 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of U.S. Patent No. 6380787 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 67-77, 79-82, 88-94 and 97-98 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honoa et al. (USP 5376842) in view of Doblar et al. (USP 6477205).

As to claim 67, Honoa discloses in figure 3 a signal transmission system comprising: a first transmission member (412) having a first length, the first transmission member including a transmission medium (inherent); a second transmission member (414) having a second length, the second transmission member including the transmission medium (inherent); a signal source (404) having first and second signal outputs coupled to the first and second transmission members respectively; and an impedance adjusting component (406) coupled to the second transmission member and adapted to affect, by

the coupling thereto, a signal propagation factor of the second transmission member, whereby a relationship may be established between respective transmission times through the first and second transmission members of first and second signals received at the first and second transmission members from the respective first and second signal source outputs. Thus, figure 3 shows all limitations of the claim except for a termination circuit connected to at least one of the first transmission member and the second transmission member. However, it is notoriously well known in the art that termination circuit is for reducing signal reflection, thereby saving power consumption. Doblar et al.'s figure 8 shows a termination circuit 108 coupled to clock line 86 for reducing the signal reflection in the clock line. Therefore, it would have been obvious to one having ordinary skill in the art to add termination circuit for each of the clock lines in Honoa et al.'s figure 3 for the purpose of saving power consumption.

As to claim 68, the modified Honoa et al.'s figure 3 shows all limitations of the claim except the impedance adjusting component comprises: an electrical inductor. However, it is notoriously well known in the art that the impedance of parallel connected capacitor is equal to the impedance of serial connected inductor (impedance of capacitor is $1/j\omega C$, and impedance of inductor is $j\omega L$). Therefore, it would have been obvious to one having ordinary skill in the art to use series connected inductors for the impedance adjusting component due to doctrine equivalent function.

As to claims 69 and 95, the modified Honoa et al. fails to shows the electrical inductor comprises a spiral inductor. However, it is well known in the art that spiral inductor is used in high speed environment. Therefore, it would have been obvious to

one having ordinary skill in the art to use spiral inductors for the impedance adjusting component for the purpose of operating in a high speed environment.

As to claim 70, the modified Honoa et al.'s shows impedance adjusting component comprises: a material (the newly added inductors) having; a magnetic permeability, the material adapted to be incorporated into the second transmission member.

As to claim 71, figure 3 shows the impedance adjusting component comprises: an electrical capacitor.

As to claim 72, figure 3 shows the relationship established between respective transmission times comprises equalization of the respective transmission times (column 3, lines 5-20).

As to claim 73, figure 3 shows the first length is different from the second length and the respective transmission times through the respective first and second transmission members are equal.

As to claim 74, it is inherent that the transmission medium comprises an electrical transmission medium.

As to claim 75, figure 3 shows the electrical transmission medium comprises a first conductor (412), a second conductor (414), and a dielectric material (inherent) disposed between the first conductor and the second conductor.

As to claim 76, figure 3 shows the electrical transmission medium comprises a first conductor (412); a second conductor (414); and an evacuated region (inherent) disposed between the first conductor and the second conductor.

As to claim 77, figure 3 shows the electrical transmission medium comprises first and second conductors (412, 414) disposed in a coaxial relationship to one another and a dialectic medium disposed between the first and second conductors.

As to claim 79, figure 3 shows the impedance adjusting component comprises a plurality of capacitors coupled to the second transmission member at a respective plurality of coupling points.

As to claim 80, figure 3 shows the first and-second signals comprise first and second digital signals.

As to claim 81, figure 3 shows first and second signal receivers (401, 403) coupled to the first and second transmission members at respective first and second signal inputs.

As to claim 82, the modified Honoa et al. shows the first input has an input impedance substantially equal to a characteristic impedance of the first transmission member (because of the newly added termination circuits) and the second input has an input impedance substantially equal to a characteristic impedance of the second transmission member.

As to claim 88, the modified figure 3 shows a signal transmission system comprising: a signal source (404) having first and second signal outputs; a first transmission member (412) coupled to the first output, the first transmission member having a first length, the first transmission member including a first transmission medium (inherent) having a first characteristic impedance; a second transmission member (414) coupled to the second output, the second transmission member having a second length, the second transmission member including a second transmission medium having a

second characteristic impedance, whereby a relationship may be established between respective transmission times through the first and second transmission members of first and second signals received at the first and second transmission members from the respective first and second signal source outputs; a termination circuit (newly added) connected to at least one of said first transmission member and the second transmission member for terminating at least one of the first transmission member and the second transmission member.

As to claim 89, it is inherent that the first characteristic impedance depends on a magnetic permeability of a material of the first transmission medium.

As to claim 90, the modified Honoa et al.'s figure 3 shows a communication circuit comprising: a signal transmitter (404); first and second transmission media (412, 414) coupled to the signal transmitter; first and second receiving circuits (401, 403) coupled to the first and second transmission media respectively; means (not shown) for equalizing an input impedance of the first receiving circuit and a first characteristic impedance of the first transmission medium (see the rejection of claim 82); means (not shown) for equalizing an input impedance of the second receiving circuit and a second characteristic impedance of the second transmission medium; means (the newly added termination circuits) for terminating the first characteristic impedance of the first transmission medium and the second -characteristic impedance of the second transmission medium; and means (406) for differentiating the first characteristic impedance from the second characteristic impedance.

As to claim 91, figure 3 shows the first and second transmission media are disposed over a common integrated circuit substrate (it is inherent that integrated circuit having substrate).

As to claim 92, the modified figure 3 shows a method of synchronizing first and second operations of respective first and second circuits (401, 403) comprising: receiving a first signal transition at the first circuit through a first transmission member (412), the first transmission member having a first signal propagation factor and a first geometric length, the first signal propagation factor related to a first characteristic impedance of the first transmission member; receiving a second signal transition at the second circuit through a second transmission member (414), the second transmission member having a second signal propagation factor and a second geometric length, the second signal propagation factor related to a second characteristic impedance of the second transition member, the second geometric length different from the first genetic length; terminating the first characteristic impedance of the first transmission member and the second characteristic impedance of the second transmission member; and receiving the first and second signal transitions at the first and second transmission members synchronously.

As to claim 93, figure 3 shows the receiving the first and second signal transitions at the first and second transmission members synchronously comprises receiving the first and second signal transitions at the first and second transmission members substantially simultaneously.

As to claim 94, figure 3 shows the second characteristic impedance depends on an impedance of at least one impedance (of 406) modifying component coupled to the second transmission member.

As to claim 96, figure 3 shows the impedance modifying component comprises a capacitor.

As to claim 97, figure 3 shows the second characteristic impedance depends on a magnetic permeability of a material incorporated into the second transmission member (it is inherent that transmission line 414 having parasitic inductance).

As to claim 98, the modified figure 3 shows the termination circuit terminates at least a first characteristic impedance of the first transmission member and the second characteristic impedance of the second transmission member.

4. Claim 78 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant admitted prior art in view of Honoa et al. (USP 5376842).

As to claim 78, Applicant admitted in the "back ground of invention" that clock distribution circuit is used in optical medium. The prior art fails to shows a detail of the clock distribution. However, the modified Honoa et al.'s figure 3 shows a detail of clock distribution circuit (see the rejection of claim 67) having the advantage of reducing clock skew. Therefore, it would have been obvious to one having ordinary skill in the art to use Honoa et al.'s clock distribution circuit in an optical medium for the purpose of reducing clock skew.

5. Claims 83-86 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honoa et al. (USP 5376842) in view of Applicant admitted prior art in (USP 6377084).

As to claim 83, the modified Honoa et al.'s figure 3 shows all limitations of the claims except for the first signal receiver comprises a pseudo differential amplifier. However, the admitted prior art figure 2 in USP 6377084 shows a pseudo differential amplifier that can response more rapidly than other amplifier. Therefore, it would have

been obvious to one having ordinary skill in the art to use the prior art figure 2 for Honoa et al.'s receivers for the purpose of improving the operational speed.

As to claim 84, the prior art figure 2 in USP 6377084 shows the pseudo differential amplifier comprises a current sense amplifier and wherein the first signal comprises a current signal.

As to claim 85, the prior art figure 2 in USP 6377084 shows the current sense amplifier comprises a current mirror circuit (T5, T6).

As to claim 86, the modified Honoa et al. fails to teach the first receiver comprises a first input adapted to be coupled to the first transmission member and a second input adapted to be coupled to a reference signal source. However, the admitted prior art figure 1 in USP 6377084 shows a receiver comprises a first input adapted to be coupled to a transmission member and a second input adapted to be coupled to a reference signal source (ground). The prior art figure 1 having the advantage of rejecting power supply noise. Therefore, it would have been obvious to one having ordinary skill in the art to use the prior art figure 1 in USP 6377084 for Honoa et al.'s receivers for the purpose of rejecting power supply noise.

6. Claim 87 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant admitted prior art in (USP 6377084) in view of Honoa et al. (USP 5376842).

As to claim 87, the prior art figure 2 in USP 6377084 shows a signal transmission system comprising: a first transmission member (I1) having a first length, the first transmission member including a transmission medium (inherent); a second transmission member (I2) having a second length, the second transmission member including the transmission medium (inherent); a signal receiver (the differential amplifier) having first

and second signal inputs coupled to the first and second transmission members respectively; first and second signal generators (the transistors that generate Isignals) coupled to the first and second transmission members respectively. Thus, figure 2 shows all limitations of the claim except for "an impedance adjusting component coupled to the second transmission member". However, the modified Honoa et al.'s figure 3 (see the rejection of claim 67) shows a signal transmission system having an impedance adjusting component (406) coupled to the second transmission member (416) in order to reduce clock skew. Therefore, it would have been obvious to one having ordinary skill in the art to add an impedance adjusting component to one of the transmission member in the prior art figure 2 of USP 6377084 for the purpose of reducing signal skew.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quan Tra whose telephone number is 571-272-1755. The examiner can normally be reached on 8:00 A.M.-5:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on 571-272-1740. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Quan Tra
Patent Examiner

August 9, 2004